ELECTRONICS

6AF11

DISSIMILAR-DOUBLE-TRIODE PENTODE

DESCRIPTION AND RATING

The 6AF11 is a compactron containing a high-mu triode, a medium-mu triode, and a sharp-cutoff pentode. The high-mu triode is intended for AGC keyer service, the low-mu triode for sync separator service, and the pentode for video amplifier service in television receivers.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC*	6.3 ± 0.6	Volts
Heater Current†	1.05	Amperes

Direct Interelectrode Capacitances‡

Triode (Section 1)		
Grid to Plate: (T1g to T1p)	1.9	pf
Input: T1g to (T1k+T2k+Pk+Pg3+h+i.s.)	3.0	pf
Output: T1p to (T1k+T2k+Pk+Pg3+h+i.s.)	2.2	pf
Triode (Section 2)		
Grid to Plate: (T2g to T2p)	3.6	pf
Input: T2g to (T2k+Pk+Pg3+h+i.s.)	2.4	pf
Output: T2p to (T2k+Pk+Pg3+h+i.s.)	3.8	pf
Pentode		
Grid-Number 1 to Plate: (Pg1 to Pp)	0.12	pf
Input: Pg1 to (T2k+Pk+Pg2+Pg3+h+i.s.)	10	pf
Output: Pp to (T2k+Pk+Pg2+Pg3+h+i.s.)	4.5	pf
Pentode Plate to Triode Plate (Section 2): (Pp to T2p), maximum	0.045	pf
Triode Plate (Section 1) to Triode Plate (Section 2): (T1p to T2p), maximum	0.06	pf

MECHANICAL

Mounting Position—Any

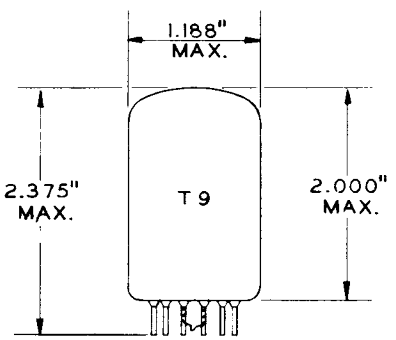
Envelope—T-9, Glass

Base—E12-70, Button 12-Pin

Outline Drawing—EIA 9-58

Maximum Diameter	1.188	Inches
Maximum Over-all Length	2.375	Inches
Maximum Seated Height	2.000	Inches

PHYSICAL DIMENSIONS

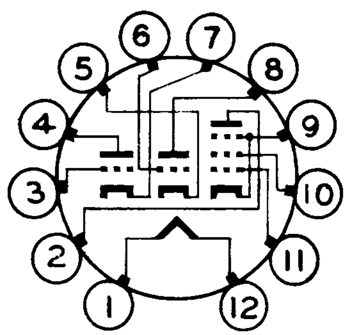


EIA 9-58

TERMINAL CONNECTIONS

Pin 1—Heater
Pin 2—Pentode Plate
Pin 3—Triode Grid (Section 2)
Pin 4—Triode Plate (Section 2)
Pin 5—Triode Cathode (Section 1)
Pin 6—Triode Grid (Section 1)
Pin 7—Triode Cathode and Internal Shield (Section 2)
Pin 8—Triode Plate (Section 1)
Pin 9—Pentode Cathode, Grid Number 3, and Internal Shield
Pin 10—Pentode Grid Number 2 (Screen)
Pin 11—Pentode Grid Number 1
Pin 12—Heater

BASING DIAGRAM



EIA 12DP

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

Pentode Section

Plate Voltage	330	Volts
Screen-Supply Voltage	330	Volts
Screen Voltage—See Screen Rating Chart		
Positive DC Grid-Number 1 Voltage	0	Volts
Plate Dissipation	5.0	Watts
Screen Dissipation	1.25	Watts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid-Number 1 Circuit Resistance		
With Fixed Bias	0.25	Megohms
With Cathode Bias	1.0	Megohms

Triode (Section 1)

Plate Voltage	330	Volts
Positive DC Grid Voltage	0	Volts
Plate Dissipation	1.1	Watts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid Circuit Resistance		
With Fixed Bias	0.5	Megohms
With Cathode Bias	1.0	Megohms

Triode (Section 2)

Plate Voltage	330	Volts
Positive DC Grid Voltage	0	Volts
Plate Dissipation	2.0	Watts
Heater-Cathode Voltage		
Heater Positive with Resepct to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid Circuit Resistance		
With Fixed Bias	0.5	Megohms
With Cathode Bias	1.0	Megohms

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Pentode Section

Plate Voltage	50	200	Volts
Screen Voltage	150	150	Volts
Grid-Number 1 Voltage	0	.....	Volts
Cathode-Bias Resistor	...	100	Ohms
Plate Resistance, approximate	...	68000	Ohms
Transconductance	...	11000	Micromhos
Plate Current	55	24	Milliamperes
Screen Current	18	4.8	Milliamperes
Grid-Number 1 Voltage, approximate			
Ib = 100 Microamperes	...	−10	Volts

CHARACTERISTICS AND TYPICAL OPERATION (Continued)

Triode (Section 1)

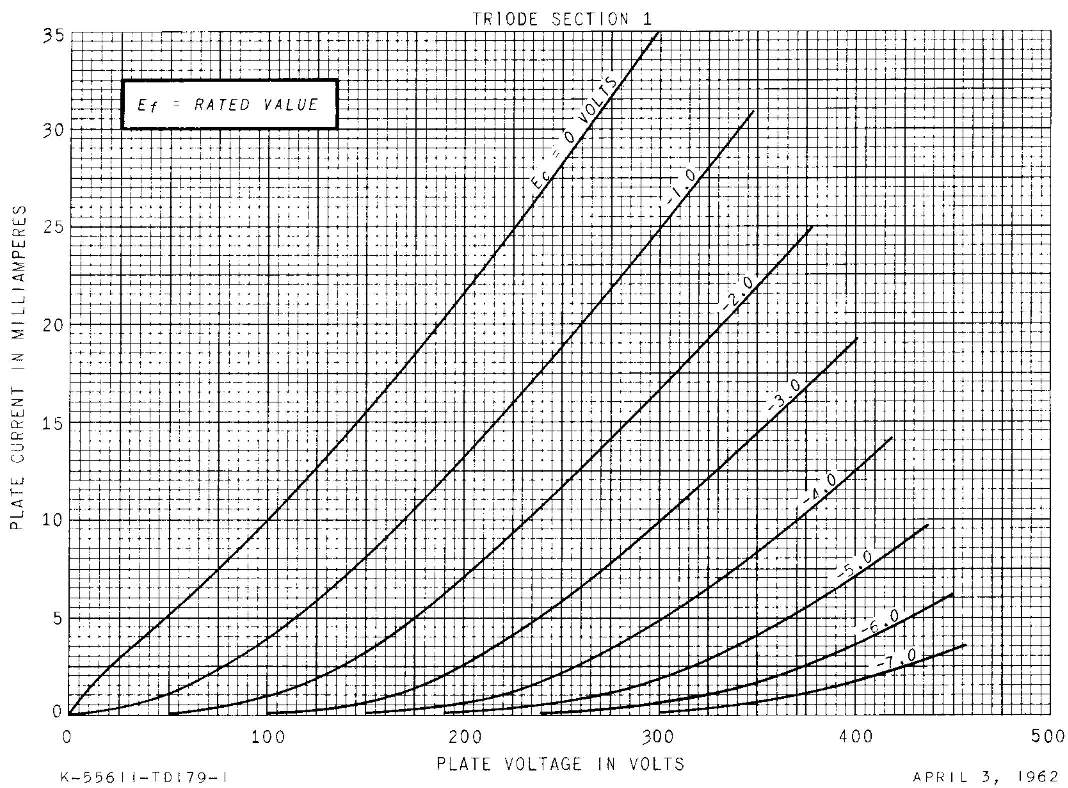
Plate Voltage	200	Volts
Grid Voltage	−2.0	Volts
Amplification Factor	68	
Plate Resistance, approximate	12400	Ohms
Transconductance	5500	Micromhos
Plate Current	7.0	Milliamperes
Grid Voltage, approximate		
Ib = 10 Microamperes	−5.5	Volts

Triode (Section 2)

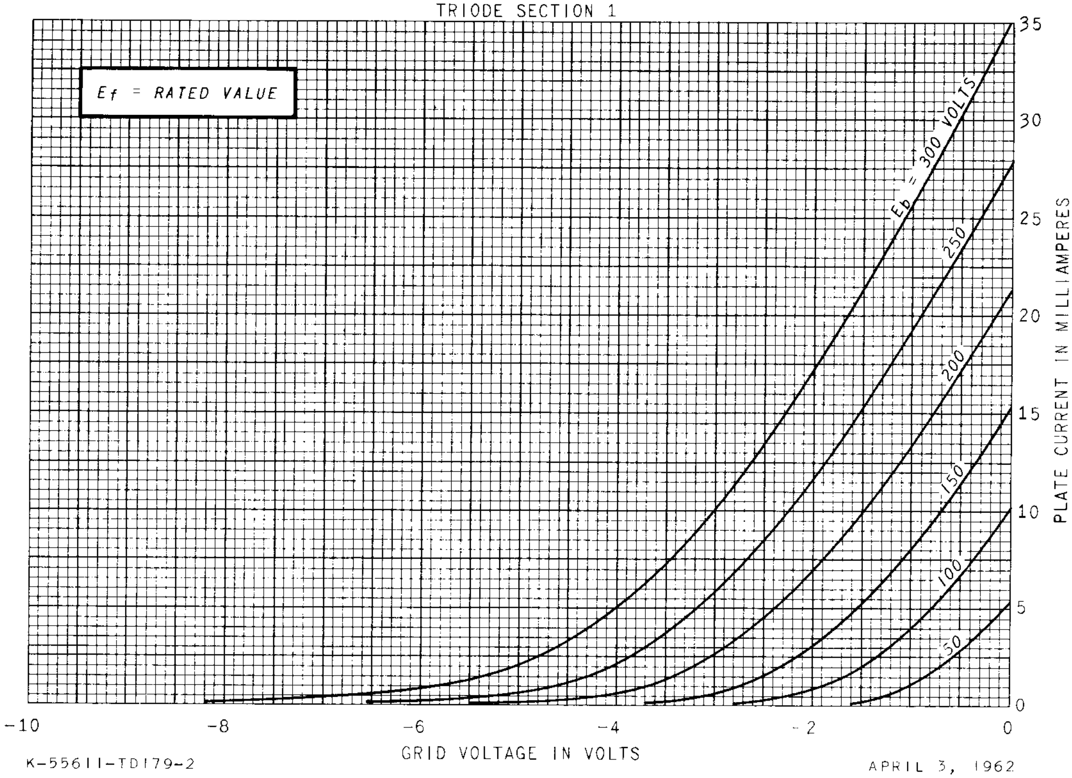
Plate Voltage	200	Volts
Cathode-Bias Resistor	220	Ohms
Amplification Factor	41	
Plate Resistance, approximate	9400	Ohms
Transconductance	4400	Micromhos
Plate Current	9.2	Milliamperes
Grid Voltage, approximate		
Ib = 100 Microamperes	−6.5	Volts

* The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.
† Heater current of a bogey tube at Ef = 6.3 volts.
‡ Without external shield.

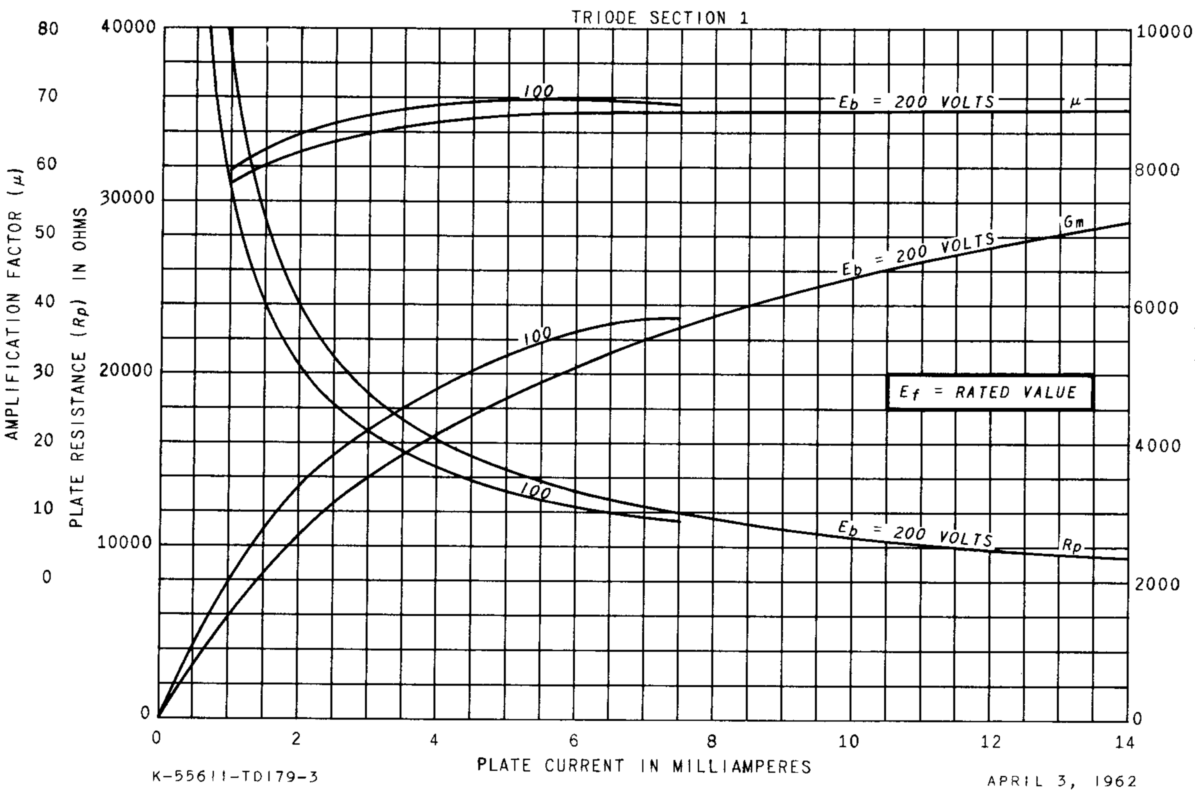
AVERAGE PLATE CHARACTERISTICS



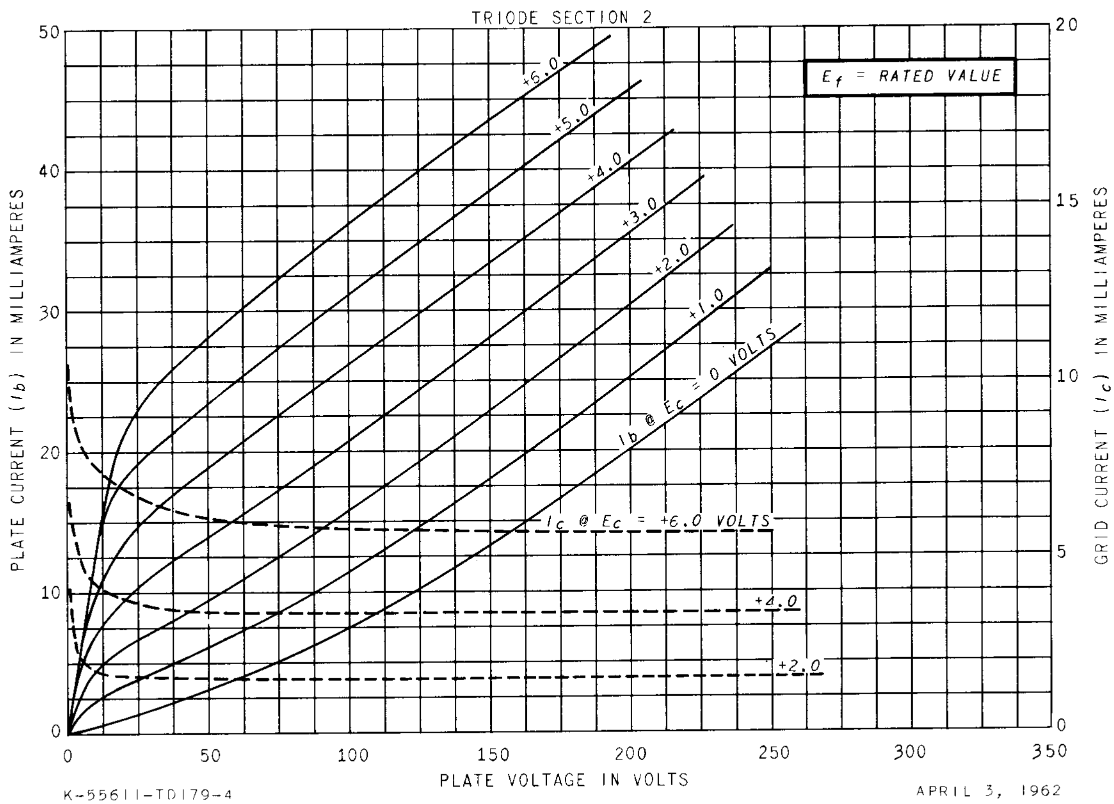
AVERAGE TRANSFER CHARACTERISTICS



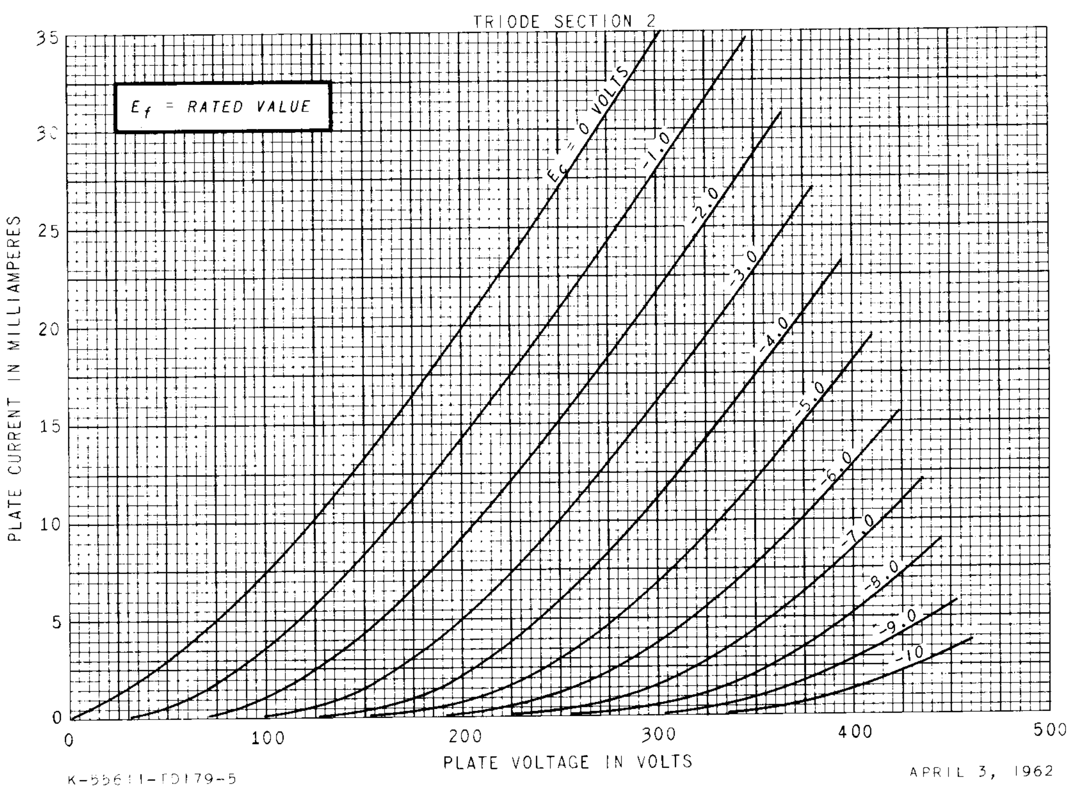
AVERAGE CHARACTERISTICS



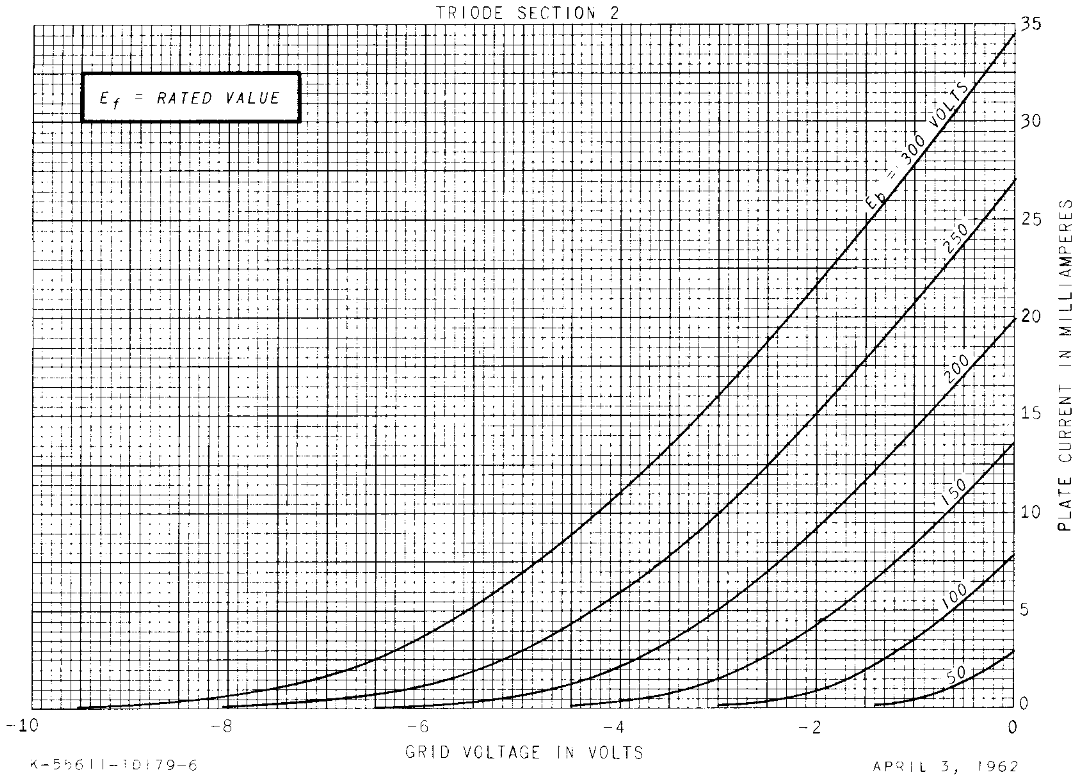
AVERAGE PLATE CHARACTERISTICS



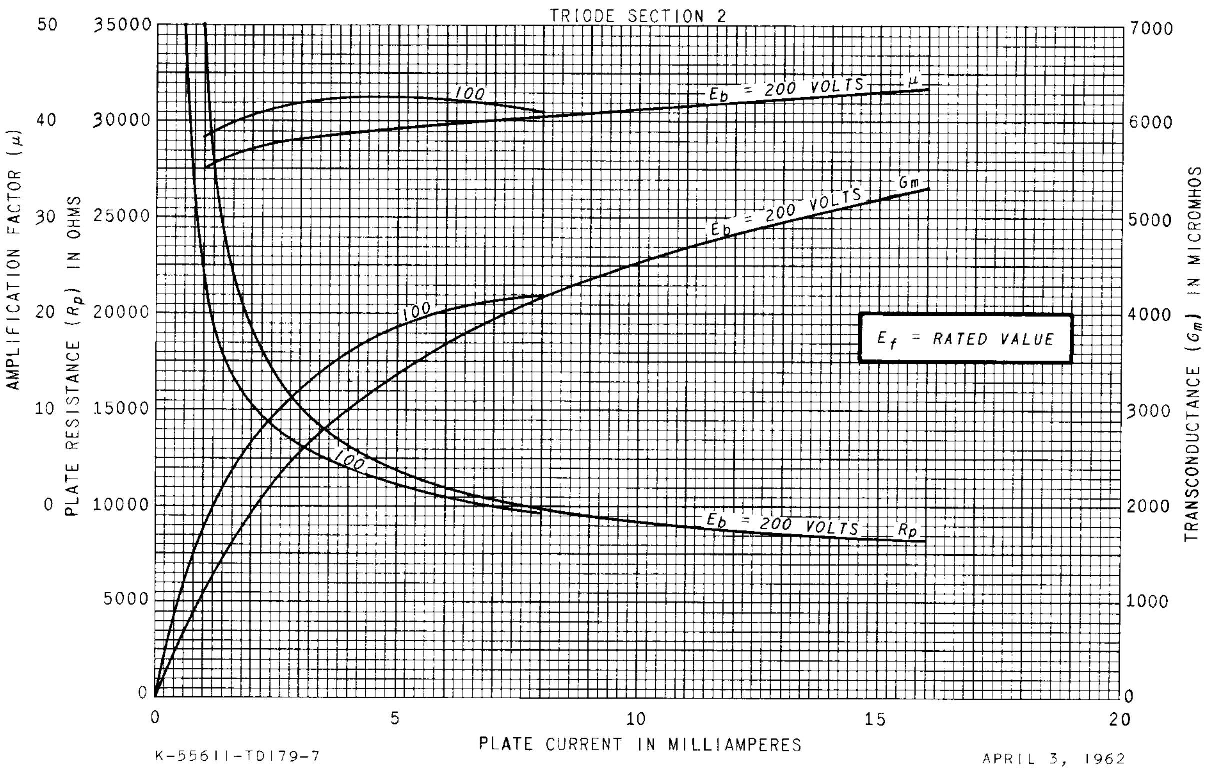
AVERAGE PLATE CHARACTERISTICS



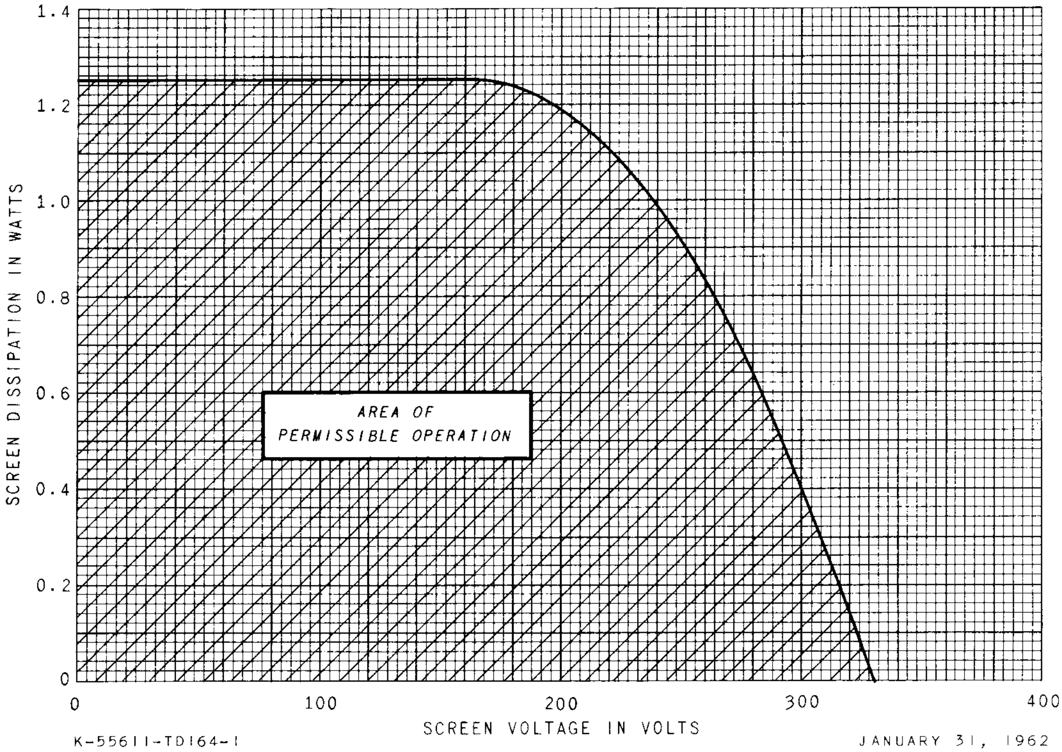
AVERAGE TRANSFER CHARACTERISTICS



AVERAGE CHARACTERISTICS



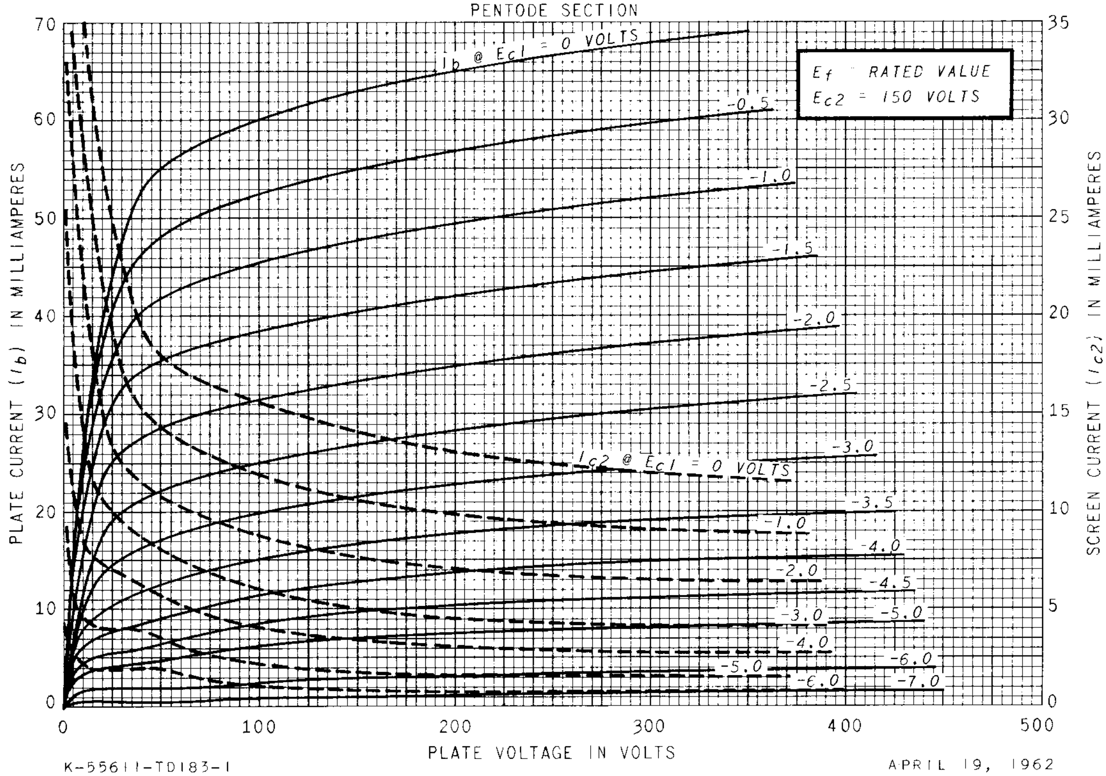
SCREEN RATING CHART



K-55611-TD164-1 JANUARY 31, 1962

AVERAGE PLATE CHARACTERISTICS

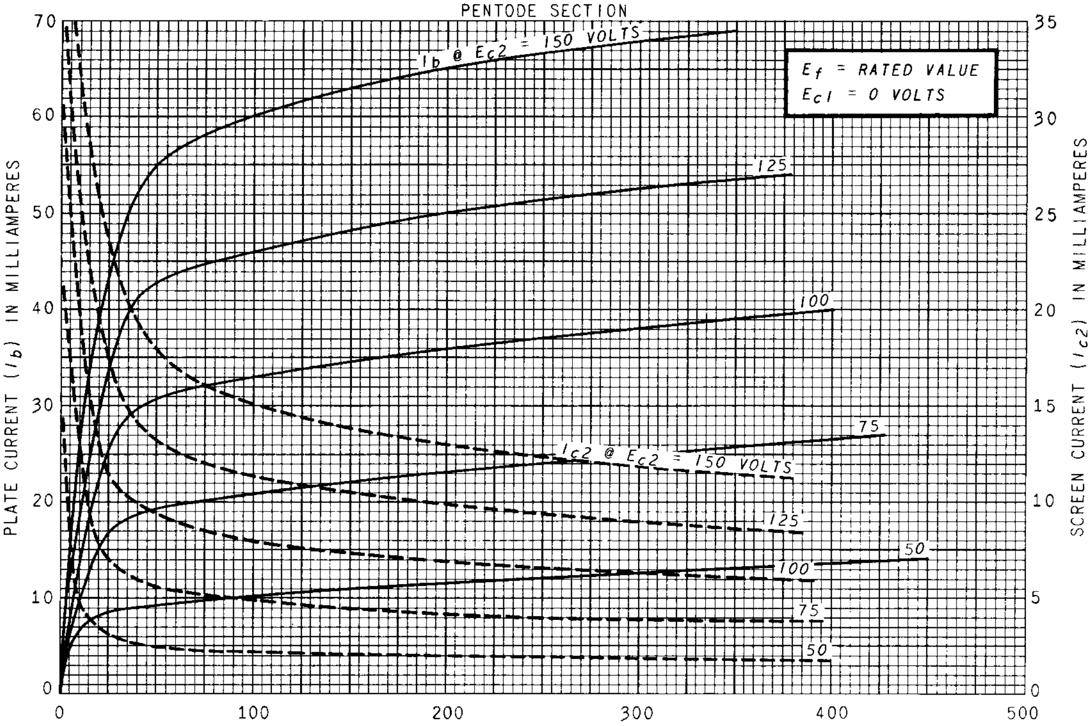
PENTODE SECTION



K-55611-TD183-1 APRIL 19, 1962

AVERAGE PLATE CHARACTERISTICS

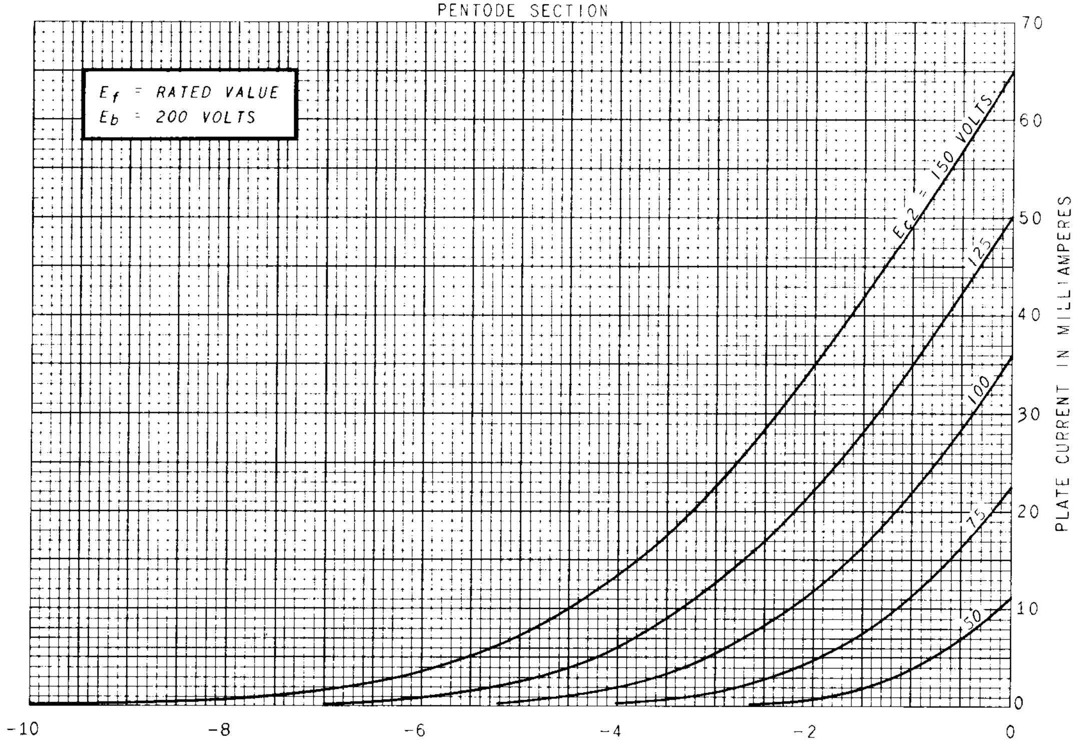
PENTODE SECTION



K-55611-TD183-2 APRIL 19, 1962

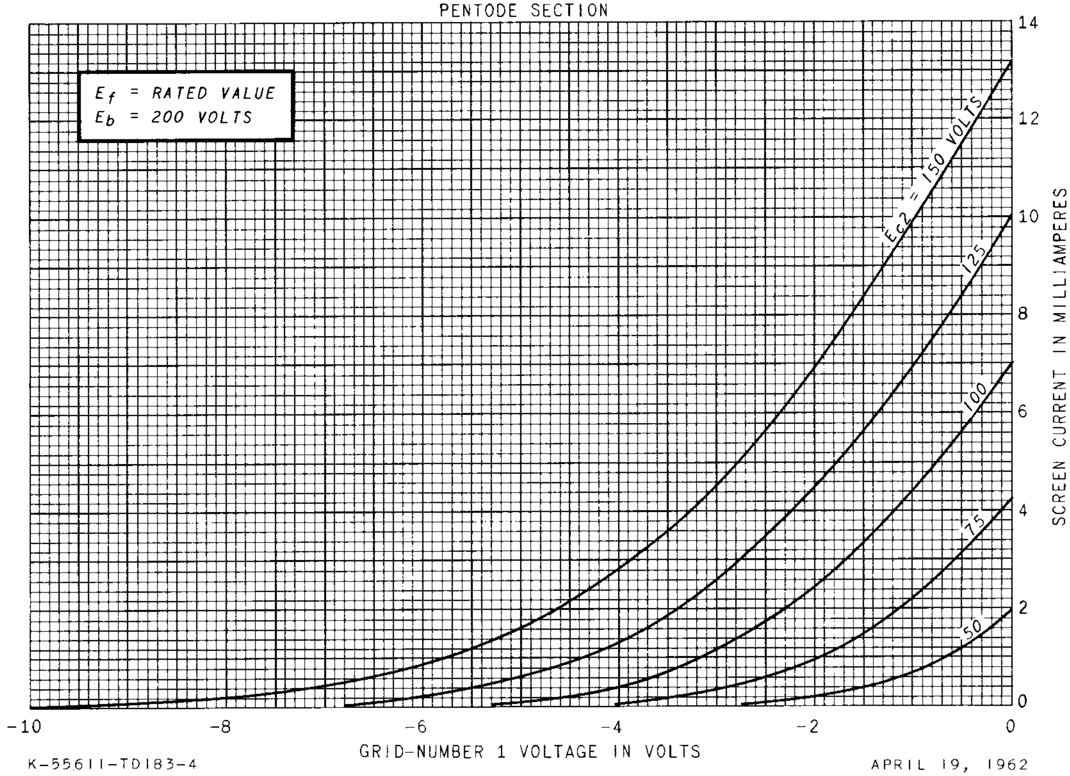
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

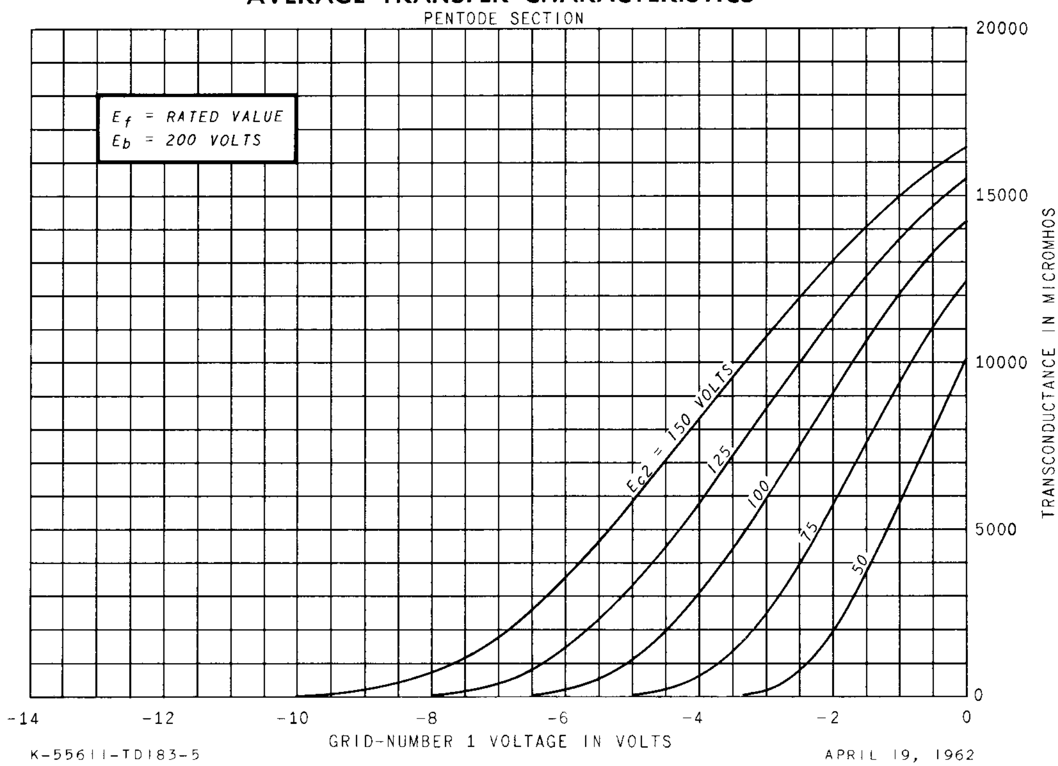


K-55611-TD183-3 APRIL 19, 1962

AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



RECEIVING TUBE DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky